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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,535	07/05/2005	Yoshiyuki Nousou	264008US8PCT	2490
22850	7590	03/20/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER GRUN, ROBERT J	
			ART UNIT 1791	PAPER NUMBER
			NOTIFICATION DATE 03/20/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/518,535	Applicant(s) NOUSOU ET AL.	
	Examiner ROBERT J. GRUN	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/7/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kabumoto et al. (US Patent No. 5,844,731) in view of Thornton (US Patent No. 5,938,317), and further in view of Shumake et al. (PG PUB No. 2003/0205489 A1) and Schirer (US Patent No. 6,155,325).

- Regarding Claims 1 and 2: Kabumoto discloses the manufacture of a light reflecting plate made of thermoplastic polyester plastic foam, which has a high reflectance of visible light (abstract) having multiple angled concave surfaces (figures 3-4). The foam disclosed by Kabumoto has a mean cell (pore) diameter of 50 um (abstract). Kabumoto does not disclose the bending of the reflective foam in forming the reflecting plate. Kabumoto

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instead thermoforms the foam. Kabumoto also does not disclose the cutting of slits to enable folding of the reflector plate (perforation lines). However, bending the reflection plate (250) in order to form a pattern for diffuse light scattering is taught by Thornton (col. 18 lines 41-52 and figures 1, 33, and 37). The reflecting plate of Thornton has a similar arc shape to that of Kabumoto. A person having ordinary skill in the art at the time of invention would have found it obvious to use known alternative methods of forming, such as to bend the reflection plate as taught by Thornton, instead of vacuum thermoforming in forming the reflecting plate of Kabumoto because it requires less specialized machinery and is cheaper to fold a pattern than it is to vacuum thermoform a pattern. Furthermore, a person having ordinary skill in the art at the time of invention would have found it obvious to add perforation or score lines in the foam before the reflecting foam sheet is bent into desired configuration, because: a) Shumake discloses die cutting and/or scoring a foam sheet "to facilitate folding" (pg. 2 ¶ 24 second sentence); and, b) scoring and perforating are art recognized effective ways for creating a line of weakness to create a fold line to a sheet as exemplified in the teachings of Schirer (col.4 lines 26-36). Additionally, Thornton teaches the reflector plate (250) having mounting holes (260) which are used to attach the reflector plate to the support brackets (252) (other supports preferably made of thin metallic sheet metal such as aluminum (col. 11 lines 51-53)) via conventional fasteners (col. 18 lines 33-39). While

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Thornton does not specifically state that support (252) is also made of aluminum, one having ordinary skill in the art at the time of invention would have found it obvious to make all supports out of the same material (aluminum sheet) for convenience of manufacturing. While Thornton does not describe the fasteners to be claw-like and specifically mentions screws, rivets, and nuts and bolts as the fasteners, one having ordinary skill in the art would have found it obvious to use any number of known fasteners to attach the reflecting plate to the support brackets, including claw-like tabs. This is true because one having ordinary skill in the art at the time of invention would have realized the necessity of supporting the reflecting plate to maintain its shape, given the teachings of Thornton. The size and shape of the tabs to be used to fasten the reflecting plate would be a matter of routine optimization to one having ordinary skill in the art. Said person would find it obvious to optimize the fastening potential (ability of the fasteners to maintain/support the shape of the reflecting plate) of the tabs while maximizing the reflecting surface of the reflecting plate. Additionally, Thornton also describes each of the reflecting plates (250) to have a bendable tab (264) which also helps the reflector maintain its shape (col. 18 lines 50-60). While Thornton describes the tab to be part of the reflecting plate (resin), one having ordinary skill in the art at the time of invention would have found it obvious to use tabs as fasteners and therefore would have found it obvious to form tabs from the support bracket in order to attach the reflecting plate to the support bracket.

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- Regarding Claim 3: Kabumoto, Ishikura, Shumake and Schirer teach the invention as described above in the rejection of claims 1 and 2. As to the slits or cuts being not more than 3 mm wide, 10 mm long and 1 mm apart, one of ordinary skill in the art would have found it obvious to vary the width, length and distance between the cuts as a matter of routine optimization. Said person would optimize the process by finding the balance between ease of folding and strength of the resulting hinge.
- Regarding Claim 5: Kabumoto, Thornton, Shumake and Schirer teach the invention as described above in the rejection of claims 1 and 2. As described above one having ordinary skill in the art at the time of invention would have found it obvious to secure the reflecting plate to a support using tabs (claw-like portions). Additionally a person having ordinary skill in the art at the time of invention would have found the placement and pitch of the fasteners to be a matter of routine optimization. Said person would find optimize the balance between support for the reflecting plate and cost and time needed for manufacturing.
- Regarding Claim 6: Kabumoto, Thornton, Shumake and Schirer teach the method as described above in the rejection of claims 1 and 2. As such they also teach the product as manufactured by the above method.

Response to Arguments

4. Applicant's arguments filed December 8, 2008 have been fully considered but they are not persuasive. All of the features of the invention are described by

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or rendered obvious by the combination of Kabumoto, Thornton, Shumake and Schirer, as described above in the rejection of claims 1 and 2.

- As described above the reflecting plate of Thornton is attached to and supported by support brackets, which renders it obvious to add a support structure to the reflecting plate. It would have been obvious to one having ordinary skill in the art to use one of many known fasteners in order to do the fastening. Tabs are known fasteners and therefore would have been obvious to one having ordinary skill in the art for the purpose of fastening the reflector plate to the support means.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT J. GRUN whose telephone number is (571)270-5521. The examiner can normally be reached on Mon-Thur 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT J GRUN/
Examiner, Art Unit 1791

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791